

A redescription of types of six species of Neotropical Veronicellidae (Mollusca; Gastropoda) in the British Museum (Natural History)*

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Resumo

Com base no exame dos exemplares tipos depositados nas coleções do Museu Britânico de História Natural, Londres, Inglaterra, são redescritas, destacando-se os característicos específicos válidos, as seguintes espécies: *Vaginula cordillerae* Simroth, 1914, *Vaginula fusca* Heynemann, 1885, *Veronicella laevis* Blainville, 1817, *Vaginula nesiotis* Simroth, 1914 e *Vaginula nigra* Heynemann, 1885, bem como um paralectótipo de *Vaginula columbiana* Simroth, 1914.

Introduction

This publication is part four of a series in which the types of neotropical Veronicellidae are redescribed; three parts have already been published (Thomé, 1969a, 1969b, 1970). Types of six species in the British Museum (Natural History) are considered here and some new features of the external and internal morphology are described. It is the opinion of the author that these characters are important for the correct diagnosis of these species and a full discussion of their significance can be found in Thomé (1969a).

Vaginula cordillerae Simroth

Vaginula cordillerae Simroth, 1914 : 303–305, pl. 12, figs 50–53.

Cylindrocaulus fuhrmanni Hoffmann, 1925 : 237 (*partim*), *non* Simroth.

HOLOTYPE. BM(NH) Reg. No. 1928.8.27.26.

TYPE LOCALITY. 'Argelia Cafetal' (east mountain ridge), Columbia – at 1600 m.

LEG. Dr O. Fuhrmann (no date).

The specimen was in good condition; it had been opened longitudinally along the dorsal surface, but all the organs remaining *in situ*.

EXTERNAL MORPHOLOGY (Pl. 1, figs 1–3)

Size. Length: 59 mm; breadth: 19 mm; height: 12 mm; right hyponoyum width: 7.4 mm; sole width: 6.2 mm; distance of female opening from anterior end: 32 mm, from posterior end: 23 mm, from pedal groove: 2.3 mm.

Description. Animal medium size, with a greater width than height; outline elliptical in dorsal view and specimen not arched. Notum dark grey with light brown shading; darker spots correspond to the position of mucous pores. Perinotum light brown, conspicuous, sharpened and slightly upturned. Hyponota grey, as the notum, and devoid of dark spots. Sole light brown without median line. Position of the female opening is about 1/3 of the hyponotum from pedal groove and slightly posterior to the mid-point of the body length. Circular anus situated to the right of sagittal plane and extending a little beyond the pedal groove; closed by a small thick plate, and completely covered by the posterior extension of the foot. This extension is devoid of pigmentation. Simroth (1914) describes coloration as follows: 'Der ganze Ton ist mit Ausnahme der blassen

* Contribution No. 4, in series 'Redescription of types of Neotropical Veronicellidae (Mollusca; Gastropoda)'.

Sohle schwärzlich chocoladen-braun, durchaus einfarbig, kaum dass das Perinotum eine Spur heller bleibt. Hie und da ist auf dem Notum eine hellere ockerige rundliche Stelle von höchstens 1 mm Durchmesser mit einem schwarzen Punkt in der Mitte, einem Drüsentuberkel. Sonst ohne Abzeichen. Das Hyponotum das vom Pigment bis zur Grenze an der Fussrinne gleichmässig bedeckt ist, erscheint ganz feinkörnig. Ebenso das Notum, nur dass sich hier in regelmässigen Abständen von ca. 1 mm deutlich etwas grössere rundliche Körner erheben, die als dunkle Punkte hervortreten, ohne doch tief schwarz zu sein.'

INTERNAL MORPHOLOGY (Figs 1-3, 15)

Digestive system. Anterior intestinal loop covered by a lobe of the digestive gland, which is 4.0 mm wide. Rectum penetrating body wall near the oviduct and above it (Fig. 2).

Nervous system. The pedal nerves originate close together and extend in this manner for half the length of the animal; then they diverge but continue parallel to the posterior end. The pedal nerves are not attached to the body wall until they reach the aorta. Total length of pedal nerves: 35.0 mm; diverge for 20.0 mm; maximum distance separating the parallel nerves: 2.0 mm; meeting aorta at 8.5 mm.

Pedal gland. Cylindrical, flattened, loose and coloured light yellow. Appears to be disproportionately long for the size of the animal. Outside zone clearly delimited up to the distal end, where delimitation is lost. At distal end, inner zone of the gland with a narrow longitudinal furrow. Length in natural position: 16.5 mm; distended: 18.0 mm; width: 1.7 mm (Fig. 1).

Reproductive system. Spermatheca pear-shaped, attached at the swollen end to a thick and well-developed duct (= spermathecal stalk). The duct fuses with the oviduct inside the body tegument. Canalis junctor well developed and coiled; attached to the spermatheca at the narrowest section (Fig. 2).

Penial gland with a small conical papilla. Papilla with roughened surface and blunt apex, length 5.5 mm, maximum diameter 2.7 mm. Penial gland with 18 uniform non-bifurcated tubular diverticula. These are tightly coiled and are sheathed by a thick pellicle in the proximal region (Fig. 3). Each diverticulum has a diameter of 0.5 mm and a maximum length of 6.0 mm.

Total length of penis is 16.0 mm, with a maximum diameter of 1.6 mm, consisting of a short conical stalk, only 1.5 mm long and a long glans which is attached to the pointed region of stalk. Base of glans slightly flattened, on one side two flaps which are somewhat folded and notched basally; while on the reverse the glans is fused with the stalk and is delimited only by a transversal rib (Fig. 15). The remaining region of the glans is cylindrical, with the distal end having a rhomboid apex and a median opening.

COMMENTS

Simroth's (1914) extensive description concentrated predominantly on structures of very little specific value and the illustrations provide little additional information. The synonymy proposed by Hoffman (1925) will be discussed in a later paper.

Vaginula fusca Heynemann

Vaginula fusca Heynemann, 1885: 6-7, pl. 1, figs 1-3.

Cylindricaulus fuscus (Haynemann); Hoffmann, 1925: 157, 208, 238-239, pl. 5, figs 45d, 7 (*partim*).

HOLOTYPE. BM(NH) Reg. No. 1896.6.5.72.

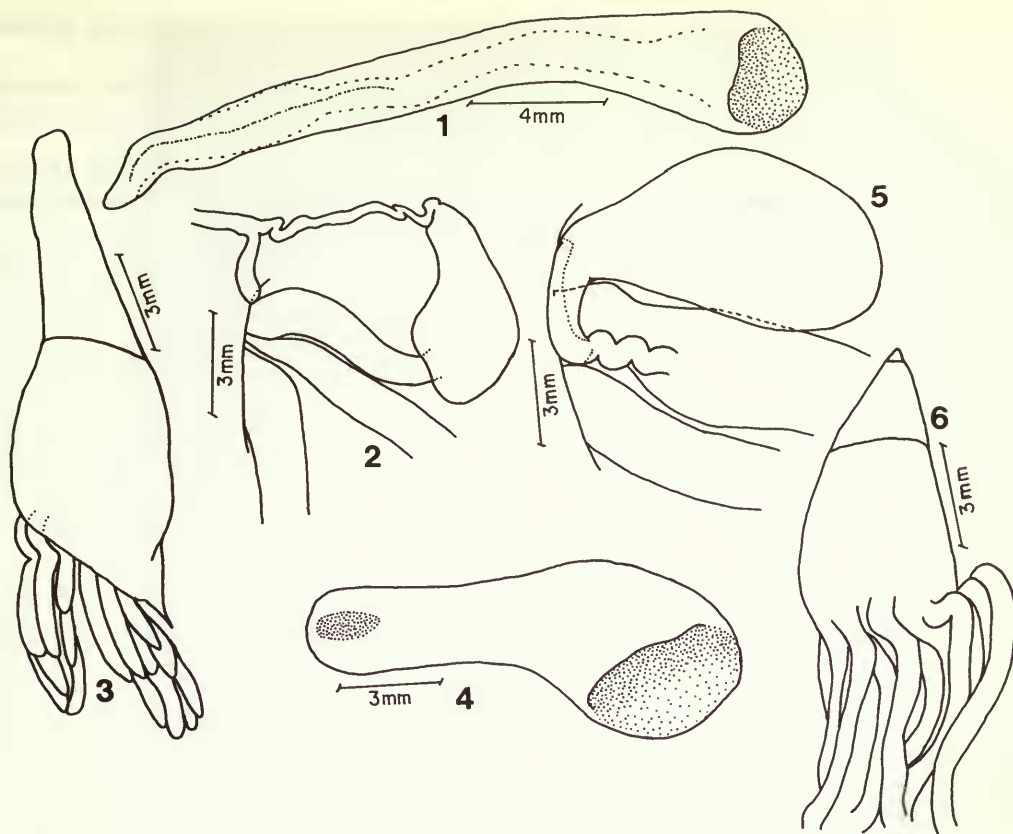
TYPE LOCALITY. Rio de Janeiro, Guanabara, Brazil.

LEG. Dr Cunningham in 1867; presented to the museum by the Lords of the Admiralty.

The specimen was well preserved both for colour and internal anatomy; previously it had not been dissected. The penis and the penial gland were removed and placed in a small tube in the jar with the specimen.

EXTERNAL MORPHOLOGY (Pl. 2, figs 1-3)

Size. Length: 81 mm; breadth: 30 mm; height: 21 mm; right hyponotum width: 12.7 mm; sole



Figs 1-3 *Vaginula cordillerae* Simroth (Holotype: BM(NH) Reg. No. 1928.8.27.26): 1. Pedal gland, dorsal view; 2. Organs close to the female genital opening, dorsal view; 3. Penial gland.

Figs 4-6 *Vaginula fusca* Heynemann (Holotype: BM(NH) Reg. No. 1896.6.5.72): 4. Pedal gland, dorsal view; 5. Organs close to the female genital opening, dorsal view; 6. Penial gland, lacking distal ends of tubular glands.

width: 14.6 mm; distance of female opening from anterior end: 37 mm, from posterior end: 28.5 mm, from pedal groove: 3.2 mm.

Description. Animal large, with a slightly greater width than height; outline elliptical in dorsal view and specimen scarcely arched above ventral region. Mantle thick and hard. Notum brown with irregularly distributed black pigmentation; pigmentation a little denser on the posterior and right sides, while in the median region a thin, irregular line remains. Perinotum whitish and devoid of pigmentation, sharpened. Hyponota whitish and without pigmentation, position inclined becoming almost vertical. Sole whitish, wide and with a very distinct median line. Female opening about 1/4 distant from pedal groove and posterior to mid-point of body length. Circular anus situated to the right of sagittal plane, inside the hyponotum, but beyond the pedal groove with which it is in contact in the mid-region; closed by a well-developed opercular blade and completely covered by the posterior foot end. End of foot wrinkled and devoid of pigmentation.

INTERNAL MORPHOLOGY (Figs 4-6, 18)

Digestive system. Anterior intestinal loop covered by a lobe of the digestive gland, which is 6.5 mm wide and with the loose extremity folded forwards. Rectum penetrating body wall near to the oviduct and above it (Fig. 5).

Nervous system. The pedal nerves have separate origins and diverge for the first 15.0 mm, then proceed in parallel till the posterior region of the body cavity. Total length: 45.0 mm; maximum

distance separating nerves: 11.0 mm. Pedal nerves loosely attached to the foot sole and approach close to the aorta beneath the pedal ganglion. Nerves infested with nematodes.

Pedal gland. Thin, very flattened, loose and coloured yellow. Outer zone wide, clearly delimited for the majority of its length. Length in natural position: 11.0 mm; distended: 13.0 mm; width: 2.0 mm (Fig. 4).

Reproductive system. Spermatheca pear-shaped, sessile, fusing with the oviduct inside the tegument. Canalis junctor short and thick; attached to the spermatheca at the pointed extremity close to the tegument (Fig. 5).

Penial gland with a conical papilla that is 2.1 mm long and with maximum diameter of 3.0 mm. Papilla without nipple, but showing a slight constriction at apex. Penial gland with 34 non-bifurcated or differentiated diverticula. Each diverticulum having a diameter of approximately 0.6 mm and a maximum length of between 50 and 60 mm, except for one which is 7.0 mm.

Total length of penis is 7.0 mm and a width of 2.1 mm with a maximum thickness of 0.8 mm; possessing a short conical stalk extending into a slightly flattened glans. Glans is S-shaped with well-developed lateral flaps, base marked on one surface by a transversal rib. Concave face of the first curve of the S and convex face of the second are smooth and flat. The opposite face of the first curve is at first enlarged, rapidly becoming slender and continuing through the second as a rib between the flaps. A slender and crenulate lip covers the opening at the tip of the penis.

COMMENTS

In the original description only data on external morphology were presented. Hoffmann's (1925) redescription was still insufficient for an accurate identification, and the illustration of the penis was particularly poor. The synonymy proposed by Hoffmann will be discussed in a further work. Divergence between the measurements given in the different descriptions can be attributed to variations in methods employed.

Veronicella laevis Blainville

Veronicella laevis Blainville, 1817 : 440–442, pl. 2, figs IV (1/2).

Belocaulus sloanei Hoffmann, 1925 : 249–250 (*partim*), *non* Cuvier.

HOLOTYPE. BM(NH) Reg. No. 196852-W.

TYPE LOCALITY. Unknown.

LEG. Unknown, no date.

The specimen was preserved in alcohol and discoloured. No anatomical dissection had been undertaken, in spite of an irregular longitudinal incision present in the posterior dorsal region of the notum. A piece of the very hard albumen gland had been removed and was found associated with the specimen; the remainder was found inside the specimen. There was also a short longitudinal incision in the anterior region of the notum, limited damage to the anterior sole region and a circular hole in the pedal groove, near the anus. Three labels were found inside the glass: a strip of paper written: '12. *Veronicella laevis* Blainv. Type.'; a rectangular piece of paper, written in two lines: '*Veronicella laevis* BL. – Jamaica Mus. Sloane'; a larger rectangular piece of paper, written in five lines: 'HOLOTYPE – *Veronicella laevis* Blainville 1817 – Jamaica Mus. Sloane – Sec. Journ. de Physique, LXXXV, dec. 1817, 442 – Sec. Cockerell, The Conchologist, Vol. 2, No. 8, Dec. 1893, p. 217'.

The slug was dissected with a cut along the left pedal groove. Only the penis and the penial gland were removed and these were placed in a small tube associated with the specimen. Preservation of internal organs was good.

EXTERNAL MORPHOLOGY (Pl. 1, figs 4–6)

Size. Length: 64 mm; breadth: 26 mm; height: 10.5 mm; right hyponotum width: 6.4 mm; sole width: 6.9 mm; distance of female opening from anterior end: 27.5 mm, from posterior end: 20.5 mm, from pedal groove: 2.2 mm.

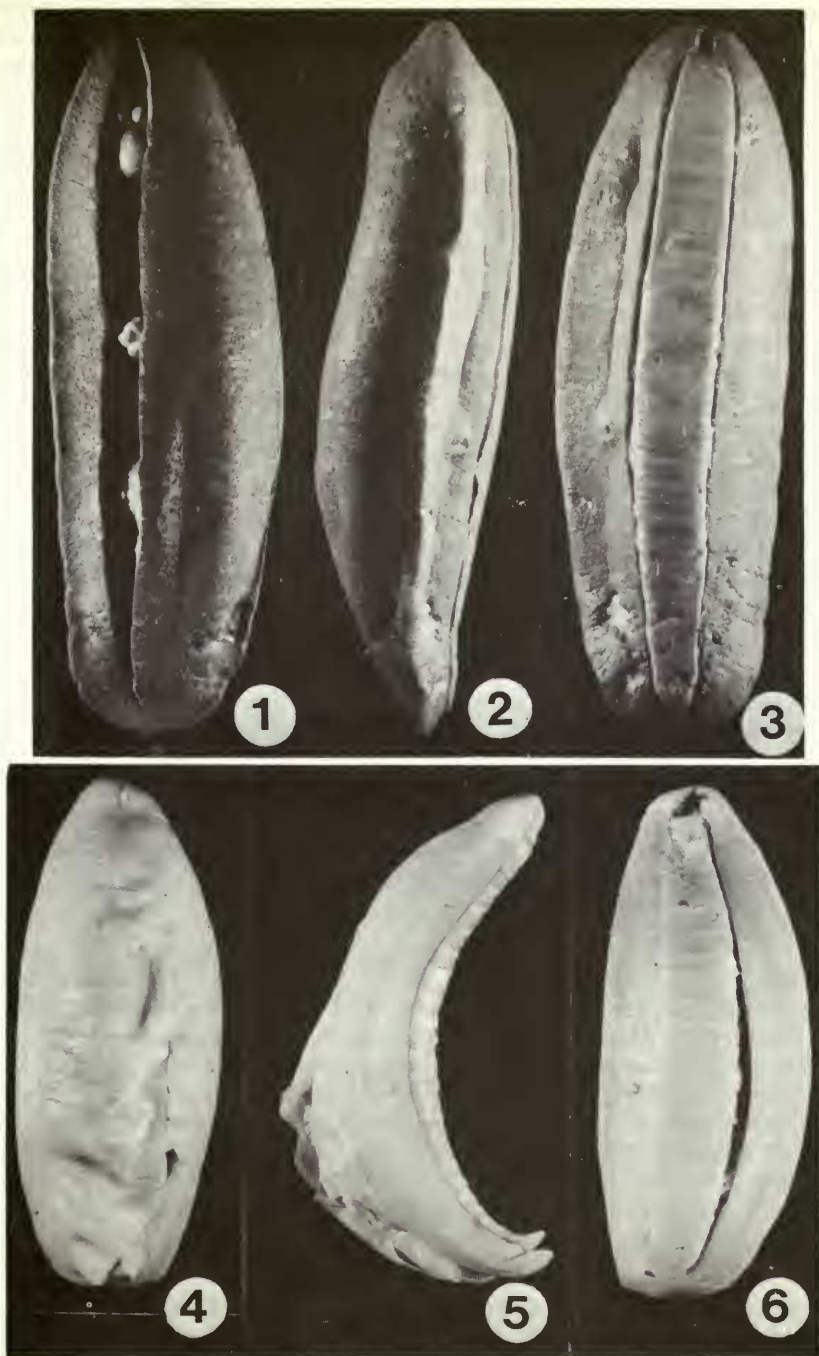


Plate 1

Figs 1-3 *Vaginula cordillerae* Simroth (Holotype: BM(NH) Reg. No. 1928.8.27.26). Dorsal, lateral and ventral view. $\times 1.708$.

Figs 4-6 *Veronicella laevis* Blainville (Holotype: BM(NH) Reg. No. 196852-W). Dorsal, lateral and ventral view. $\times 1.5$.

Description. Animal medium size, with a greater width than height, slightly arched dorsally, outline oblong with extremities quite pointed. Mantle thin. Notum, as well as the remaining area of the body, whitish and discoloured. Perinotum sharpened and keeled. Hyponota almost horizontal. Sole slightly more yellowish than other areas of the body and devoid of median line. Position of female opening distant about $1/3$ of the hyponotum from the pedal groove and posterior to the mid-point of the body. Circular anus extends from the pedal groove into the hyponotum and to the right of the sagittal plane; partially closed by a small thin operculate blade, and partially covered by loose posterior region of the foot. The latter is not papillose or pigmented.

INTERNAL MORPHOLOGY (Figs 7-9, 17)

Digestive system. Anterior intestinal loop covered by a lobe of the digestive gland, which is 2.5 mm wide. Rectum penetrating body wall near the vagina and above it (Fig. 8).

Nervous system. Pedal nerves originate together, run parallel and unattached for $1/6$ of their length until they diverge. Then adhering to the tegument extend almost parallel to the end of the body cavity where they disappear into the tegument. Total length of pedal nerves: 35.0 mm; divergent for 29.0 mm; maximum distance separating parallel nerves: 5.5 mm; meeting aorta at 2.5 mm.

Pedal gland. Small, flattened, loose and coloured yellow. External zone poorly delimited and only recognizable in the proximal region. A median concavity visible on the dorsal face at the distal region. Length: 5.2 mm; width: 1.4 mm (Fig. 7).

Reproductive system. Spermatheca subspherical, small, with a thick, rigid and very long duct. The latter fuses with the oviduct just prior to the latter joining a short vagina outside the tegument. Canalis junctor short, straight, thin, penetrating the duct at about $1/5$ from the distal end, closer therefore to the spermatheca (Fig. 8).

Penial gland small, with a minute rhomboid conical papilla 0.7 mm long and 0.9 mm wide at the base. Sixteen external diverticula on the penial gland each up to 4.5 mm long and with diameter of 0.3 mm; these differ little from the 11 internal diverticula which are up to 2.5 mm long and 0.3 mm diameter. All diverticula are wrinkled and of the same colour (Fig. 9).

Total length of penis 13.5 mm with a diameter of 1.0 mm, except for a swelling at the distal end where there is an extroversion of conical cavernous tissue, with a maximum diameter of 1.5 mm. Penis smooth, elongated and cylindrical with the deferens opening at the tip of the extroversion (Fig. 17).

COMMENTS

This species presents a polemic problem, for Blainville (1817) in the original description, mentioned the presence of '... vers le tiers postérieur, un rudiment de coquille, sans aucune trace de disque ou de bouclier' (p. 442) and stated on the same page: 'On ignore tout-à-fait sa patrie, et même comment il est arrivé dans la collection', referring to material in the British Museum (Natural History) collection. On the basis of these statements, and without ever checking the type specimen, many authors have rejected the doubted validity of this species or included it in the synonymy of *V. sloanei* (Cuvier, 1817: 411). The latter must, however, be considered as an independent species.

Blainville (1817) described the species *Veronicella laevis* and established the genus *Veronicella*, on the basis of a single specimen in the British Museum (Natural History) collection, but with no reference to its origin. Examination of the type specimen preserved in that Institution permits comparison with Blainville's drawings and description; compare plate I, figs 5 (lateral) and 6 (ventral) with plate II, drawings 1 and 2 by Blainville (1817). The conspicuous anus was interpreted by Blainville as the opening of pneumostoma and the circular hole a little ahead of the anus, which is an artifact, was thought by Blainville to be the anus, but these features together with the anterior tentacles inside the anterior edge of the mantle and the penis close to the right tentacle, all confirm Blainville's description. Finally the reference to an internal shell in Blainville, at the median posterior dorsal region and visible through the notum, can be attributed to the presence in that region of the large, but abnormally hardened, albumen gland.

Blainville (1817: 441) comments: 'le dos est assez élevé, convexe dans les deux sens et un peu plus gibbeux ou élevé à la partie postérieure', these features are visible. There follows: 'C'est à ce

point, ou environ au tiers postérieur, que l'on trouve dans l'intérieur de la peau un rudiment de coquille que l'on aperçoit à travers la peau, fort mince en cet endroit', which corresponds perfectly to the rectangular, thin, still portion of the hardened albumen gland, which Blainville interpreted as an internal rudimental shell. Blainville's mistake is quite understandable if we consider that he was the first to describe a slug of this gastropod group, the only one that does not present, in any phase of its ontogeny, any trace of shell.

This redescription should remove the polemic nature of the species particularly that concerned with the validity of Blainville's species and, therefore, the priority of the taxon, which is the 'type-species' of the genus *Veronicella* Blainville, 1817. The latter being the 'type-genus' of the family Veronicellidae Gray, 1840. A more detailed taxonomic and synonymic discussion on this problem will be presented in a forthcoming paper.

Vaginula nesiotis Simroth

Vaginula nesiotis Simroth, 1914 : 297-300, pl. 12, figs 36-42.

Cylindrocaulus olivaceus var. *jamaicensis* Hoffmann, 1925 : 233-234 (*partim*), non Cockerell.

HOLOTYPE. BM(NH) Reg. No. 1928.8.27.28.

TYPE LOCALITY. Kingston, Jamaica.

LEG. Dr O. Fuhrmann (purch. Dr O. Fuhrmann, 1928), no date.

The specimen has been so damaged that the presence of the mantle and foot sole only permit recognition as a member of the family Veronicellidae (Pl. 2, fig. 7). All other organs have been completely macerated. Nevertheless, it is possible to verify that the specimen was opened at the notum. Thus Simroth's original, but incomplete, description is the only means for reidentification of the species. The synonymy proposed by Hoffmann (1925) is unreliable as it is based on incomplete morphological data.

Vaginula nigra Haynemann

Vaginula nigra Haynemann, 1885 : 7, pl. 1, figs 4-5.

Phyllocaulus gayi (Fischer); Hoffmann, 1925 : 244-245 (*partim*).

LECTOTYPE. BM(NH) Reg. No. 1876.9.30.2, selected here.

TYPE LOCALITY. Unknown, but probably Chile.

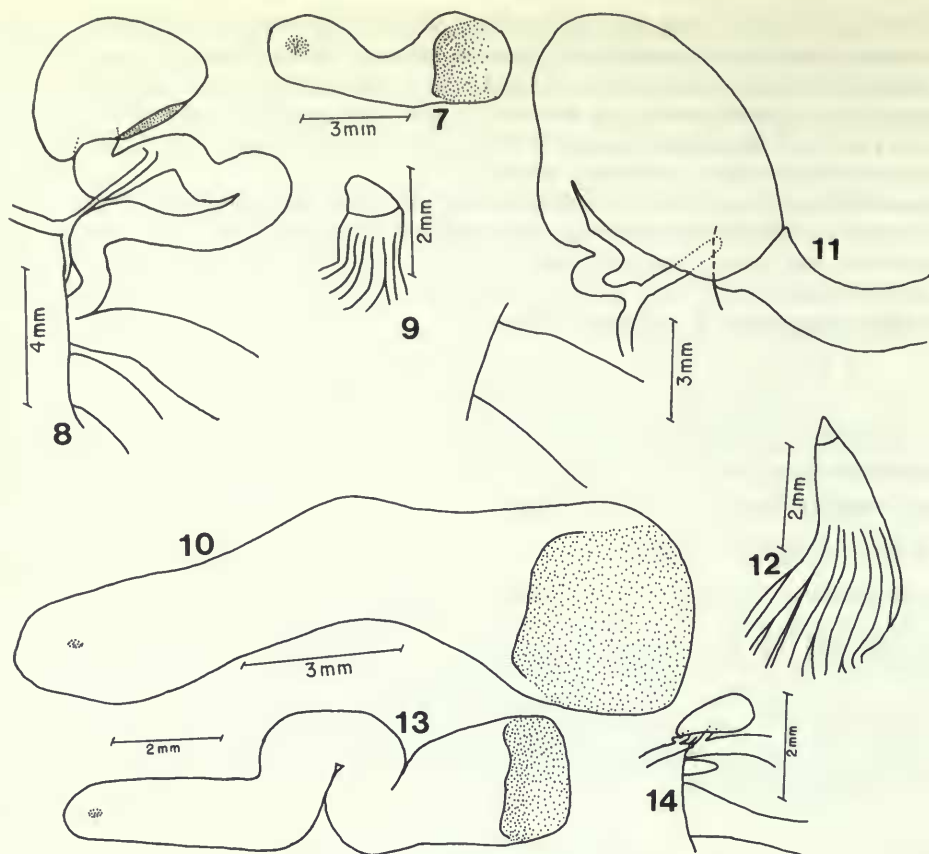
LEG. E. Gerrard Junior, no date.

Two complete specimens were present and these had not been dissected. The largest was selected as lectotype, because of its better preservation with only the penial gland abnormally soft. The paralectotype was poorly fixed; the penis was partially everted, and macerated while the other organs were also soft. Both specimens have the shiny appearance and soft consistency typical of slugs that were dying or already dead before fixation.

EXTERNAL MORPHOLOGY (Pl. 3, figs 1-3)

Size. Length: 74 mm; width: 27 mm; height: 14 mm; right hyponotum width: 7.9 mm; sole width: 7.9 mm; distance of female opening from anterior end: 26 mm, from posterior end: 36 mm, from pedal groove: 2.4 mm. (Note: dimensions of the paralectotype in the same order: 68, 27, 14, 9.9, 8.5, 25.5, 31.5 and 2.4 mm.)

Description. Animal large, with a greater width than height; outline oblong; specimen not arched, but of a soft consistency, that has contributed to the production of a cylindroid form. Colour grey, with brown staining, notum densely covered with black spots which are uniformly distributed. Perinotum not clearly defined and recognized only by a line separating the pigmented notum from the non-pigmented hyponota. The latter has a dark grey uniform colour with pale brown spots in some areas, especially near the female opening. Sole pale, without pigmentation and with a median line. Position of female opening is about 1/3 of the hyponotum from the pedal



Figs 7–9 *Veronicella laevis* Blainville (Holotype: BM(NH) Reg. No. 196852-W): 7. Pedal gland, dorsal view; 8. Organs close to the female genital opening, dorsal view; 9. Penial gland, laking distal ends of tubular glands.

Figs 10–12 *Vaginula nigra* Haynemann (Lectotype: BM(NH) Reg. No. 1876.9.30.2): 10. Pedal gland, dorsal view; 11. Organs close to the female genital opening, dorsal view; 12. Penial gland, laking distal ends of tubular glands.

Figs 13–14 *Vaginula columbiana* Simroth (Paralectotype: BM(NH) Reg. No. 1928.8.27.27): 13. Pedal gland, dorsal view; 14. Organs close to the female genital opening, dorsal view.

groove and well anterior to mid-point of body length. Circular anus situated to the right of sagittal plane, inside the hyponotum, but in contact with the pedal groove; it is almost closed by an operculate blade and completely covered by the loose tip of the foot ending. The latter is papillous and heavily pigmented black.

INTERNAL MORPHOLOGY (Figs 10–12, 16)

Digestive system. Anterior intestinal loop covered by a lobe of the digestive gland, which is 5.0 mm wide. Rectum penetrating body wall 7.0 mm behind the oviduct and slightly above it (Fig. 11).

Nervous system. The pedal nerves originate close together and extend parallel until meeting aorta; then diverging for 15.0 mm and becoming parallel until the posterior end of the body cavity. Nerves attached to the tegument. Total length of pedal nerves: 44.0 mm; maximum distance separating the nerves: 4.0 mm; meeting aorta at 4.5 mm.

Pedal gland. Thick, somewhat flattened, loose and coloured yellow. No external zone observed. Length in natural position: 8.5 mm; distended: 10.0 mm; width: 2.0 mm (Fig. 10).

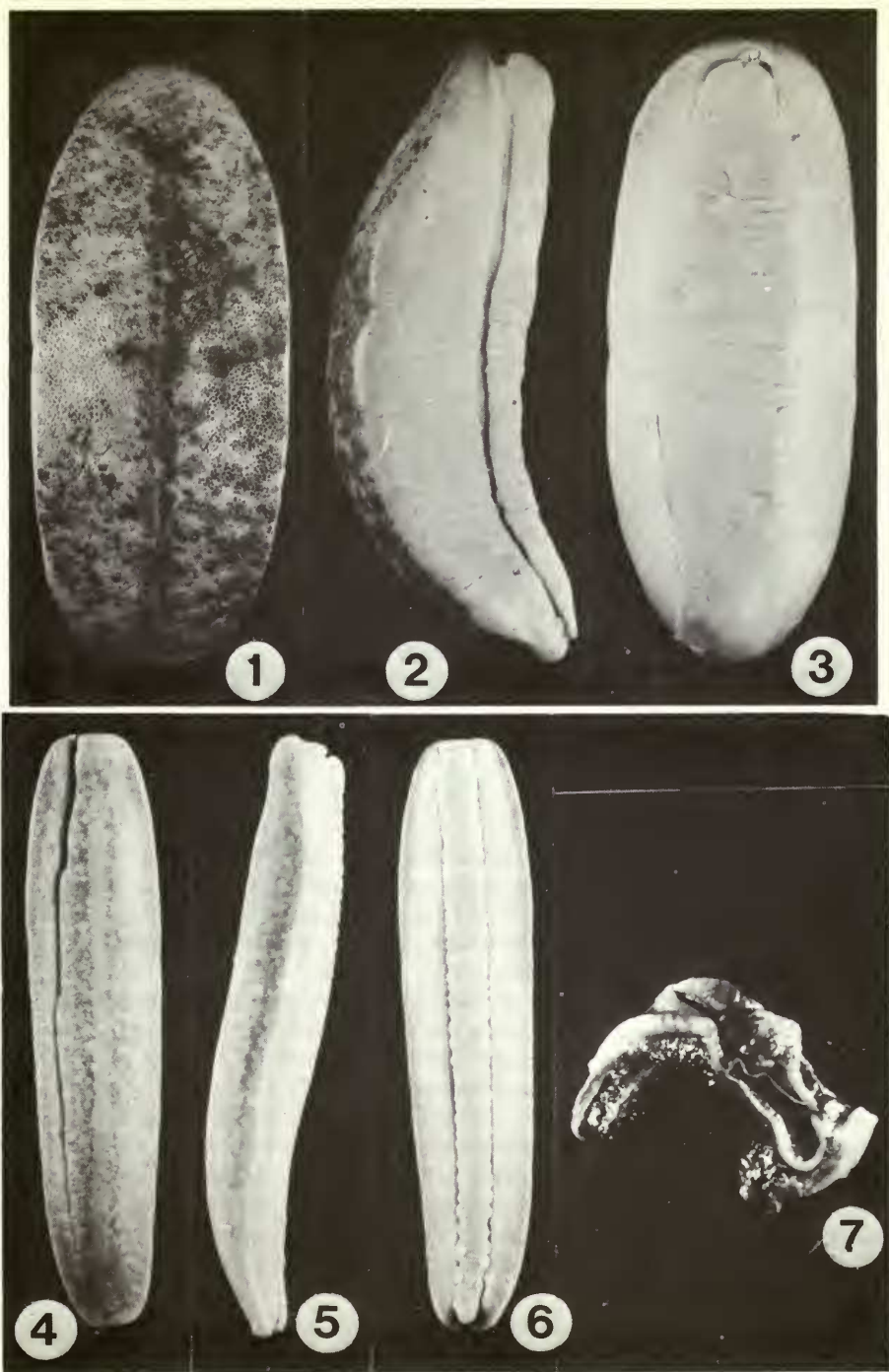


Plate 2

Figs 1-3 *Vaginula fusca* Haynemann (Holotype: BM(NH) Reg. No. 1896.6.5.72). Dorsal, lateral and ventral view. $\times 1.25$.

Figs 4-6 *Vaginula columbiana* Simroth (Paralectotype: BM(NH) Reg. No. 1928.8.27.27). Dorsal, lateral and ventral view. $\times 2.06 - \times 2.06 - \times 2.09$.

Fig. 7 *Vaginula nesiotis* Simroth (Holotype: BM(NH) Reg. No. 1928.8.27.28). View of the dried and macerated remaining portion. $\times 1.74$.

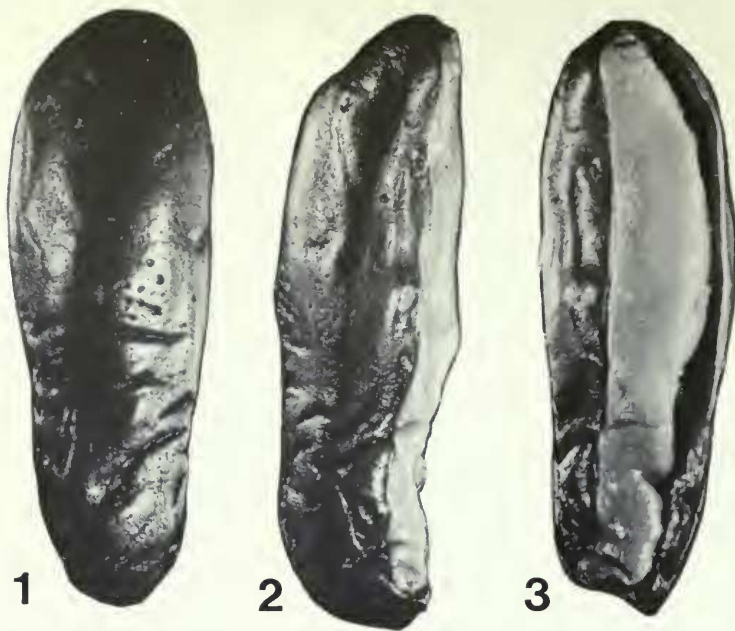


Plate 3

Figs 1–3 *Vaginula nigra* Heynemann (Lectotype: BM(NH) Reg. No. 1876.9.30.2). Dorsal, lateral and ventral view. $\times 1.40 - \times 1.40 - \times 1.35$.

Reproductive system. Spermatheca egg-shaped exhibiting laterally, close to the broadest end, a small cylindrical swollen region; with fine walls, sessile, joining the oviduct inside the tegument. The thick and short canalis junctor is attached to spermatheca at the tip of the cylindrical swollen region (Fig. 11). Penial gland small, with a tiny, conicle, pointed papilla, but without nipple. Papilla 0.5 mm long and with 0.5 mm diameter at the base.

Penial gland with 17 external diverticula each up to 30.0 mm long and 0.3 mm in diameter; there are 9, light coloured, internal diverticula each up to 20.0 mm long and 0.2 mm in diameter. Distinction between the internal and external diverticula is not very sharp; no bifurcations were seen; all are very thin at the base, soft and flattened (Fig. 12).

Penis is 9.5 mm long, 3.5 mm wide and 2.3 mm thick, with a short conical stalk, from which arises a fleshy and wide spathe. The spathe is smooth with one edge being thicker than the other and showing lengthwise on the outer surface a median ridge, resembling the spine of a book. The glans is cylindrical with the distal region pointed, with the opening of the deferens at the tip; glans attached near to the base of the spathe. The spathe is longer than the glans and slightly encloses it, yet both remain separate. Spathe length: 8.0 mm and 0.8 mm thick. Length of glans: 7.0 mm, with a maximum diameter of 1.9 mm (Fig. 16).

COMMENTS

On the basis of the original description by Heynemann (1885) only the two specimens could be recognized, although the species was indeterminate. The synonymy proposed by Hoffmann (1925) will be discussed in a forthcoming paper.

Vaginula columbiana Simroth

Vaginula columbiana Simroth, 1914 : 300–303, pl. 12, figs 43–45.

Vaginula columbiana Simroth; Thomé, 1970 : 76–78, figs 8–14.

PARALECTOTYPE. BM(NH) Reg. No. 1928.8.27.27.

LOCALITY. Columbia.

LEG. Dr O. Fuhrmann, no date.

The specimen was preserved in alcohol and it had previously been opened longitudinally along the notum. The penis and the penial gland were missing. The specimen was very young and immature.

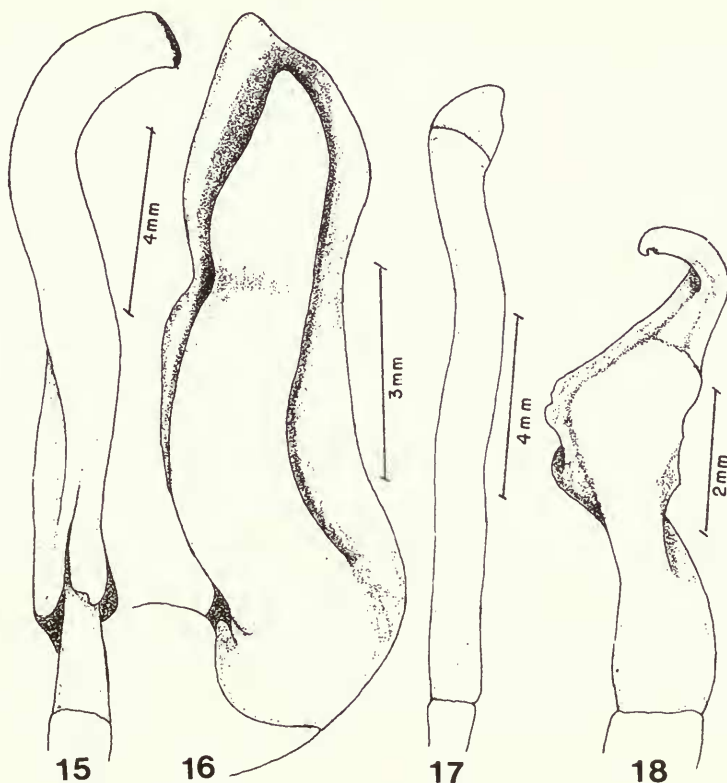
EXTERNAL MORPHOLOGY (Pl. 2, figs 4–6)

Size. Length: 41 mm; width: 10.5 mm; height: 6 mm; right hyponotum width: 4.1 mm; sole width: 2.7 mm; distance of female opening from anterior end: 23 mm, from posterior end: 16 mm, from pedal groove: 1.3 mm.

Description. Shape and colour identical to that described for the Lectotype (Thomé, 1970). In this specimen there is a single outgrowth on the perinotum at the posterior end (Pl. 2, figs 4 and 6).

INTERNAL MORPHOLOGY (Figs 13–14)

Digestive system. Anterior intestinal loop covered by a lobe of the digestive gland, which is 3.5 mm wide. The material was a little damaged and the typical dichotomization of the lobe was not observed. Rectum penetrating body wall close to and slightly above the accessory bursa, which separates it from the vagina (Fig. 14).



Penes of:

Fig. 15 *Vaginula cordillerae* Simroth (Holotype: BM(NH) Reg. No. 1928.8.27.26).

Fig. 16 *Vaginula nigra* Heynemann (Lectotype: BM(NH) Reg. No. 1876.9.30.2).

Fig. 17 *Veronicella laevis* Blainville (Holotype: BM(NH) Reg. No. 196852-W).

Fig. 18 *Vaginula fusca* Heynemann (Holotype: BM(NH) Reg. No. 1896.6.5.72).

Nervous system. The pedal nerves originate close together and run parallel almost to the end of the body cavity. They diverge very little and then only at the posterior end. They are not attached to the body wall until posterior to the point where they meet the aorta. Total length of pedal nerves: 29.0 mm; divergent for: 6.0 mm; maximum distance separating the nerves: 0.5 mm; meeting aorta at 6.0 mm.

Pedal gland. Flattened and coloured yellow. External zone light coloured and enlarged to the second fold but then indistinct. Length in natural position: 8.0 mm; distended: 10.0 mm; width: 1.3 mm (Fig. 13).

Reproductive system. Spermatheca egg-shaped, but quite pointed; attached to a cylindrical duct, and joins the oviduct posterior to the well-developed vagina which penetrates the body wall. Canalis junctor short and attaches to spermatheca near to its narrowest point. Between vagina and the rectum there is an accessory bursa, which is bell-shaped (Fig. 14).

The penial gland and the penis were not present in the specimen examined.

COMMENTS

The specimen is considered as a paralectotype because it was part of Simroth's (1914) original type species. This specimen was referred to by Simroth as being from Bogota. It is registered in the museum as being from Columbia and having been purchased from Dr O. Fuhrmann in 1928. Both the external and internal morphology permit this specimen to be specifically identified in spite of the absence of the penis and the penial gland and the sexual immaturity.

Acknowledgements

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